Claims

What is claimed is:

1   1.   A method for implementing a level bias function for branch
2 prediction control for generating test simulation vectors comprising the steps
3 of:
4   receiving user selected options for a set of constraints for generating
5 test simulation vectors for branch conditional instructions;
6   reading current resource values for predicting a branch for a branch
7 conditional instruction; and
8   generating a branch operand field BO to include a set of valid values
9 using said current resource values and based upon said user selected
10 constraints; said branch operand field BO defining conditions under which a
11 branch is taken.

1   2.   A method for implementing a level bias function for branch
2 prediction control as recited in claim 1 wherein the step of receiving user
3 selected options for a set of constraints includes the steps of receiving user
4 selected options for constraints including a percentage branch should be
5 taken; a percentage branch should be predicted; and an accuracy of the
6 prediction.

1   3.   A method for implementing a level bias function for branch
2 prediction control as recited in claim 1 wherein the step of reading current
3 resource values for predicting a branch for a branch conditional instruction
4 includes the steps of reading a count register (CTR) value and a plurality of
5 branch condition register (CR) values; said CR values including a current
6 value of said branch operand field BO, and a current value of a branch
7 operand field BI, said branch operand field BI indicating a CR bit to be read.

1   4.   A method for implementing a level bias function for branch
2 prediction control as recited in claim 3 wherein the step of generating said
3 branch operand field to include said set of valid values using said current
4 resource values and based upon said user selected constraints includes the
5 step of reducing said branch operand field BO based upon a current CR
6 value of said branch operand field BI and based upon said user selected
7 constraints.

1   5.   A method for implementing a level bias function for branch
2 prediction control as recited in claim 3 wherein the step of generating said
3 branch operand field to include said set of valid values using said current
4 resource values and based upon said user selected constraints includes the
5 steps of reducing said branch operand field BO based upon said a current
6 count register (CTR) value and said user selected constraints.

1   6.   A method for implementing a level bias function for branch
2 prediction control as recited in claim 2 wherein the step of generating said
3 branch operand field to include said set of valid values using said current
4 resource values and based upon said user selected constraints includes the
5 steps of reducing said branch operand field BO based upon user selected
6 options for said percentage branch should be predicted and said accuracy of
7 the prediction constraints.

7.   A computer program product for implementing a level bias function for branch prediction control for generating test simulation vectors in a computer system, said computer program product including instructions executed by the computer system to cause the computer system to perform the steps of:

receiving user selected options for a set of constraints for generating test simulation vectors for branch conditional instructions;

reading current resource values for predicting a branch for a branch conditional instruction; said current resource values including a count register (CTR) value and a plurality of branch condition register (CR) values; and

generating a branch operand field BO to include a set of valid values using said current resource values and based upon said user selected constraints; said branch operand field defining conditions under which a branch is taken.

8.   A computer program product for implementing a level bias function for branch prediction control as recited in claim 7 wherein the step of receiving user selected options includes the step of receiving user selected options for said set of constraints including a percentage branch should be taken; a percentage branch should be predicted; and an accuracy of the prediction.

9.   A computer program product for implementing a level bias function for branch prediction control as recited in claim 7 wherein the step reading current resource values includes the steps of reading a current CR value of said branch operand field BO, a current CR value of a branch operand field BI and a current CTR value.

10.   A computer program product for implementing a level bias function for branch prediction control as recited in claim 9 wherein the step generating said branch operand field BO to include said set of valid values using said current resource values and based upon said user selected constraints includes the step of reducing said branch operand field BO based upon said current CR value of said branch operand field BI and based upon said user selected constraints.

ROC920030196US1

1   11.   A computer program product for implementing a level bias
2 function for branch prediction control as recited in claim 9 wherein the step
3 generating said branch operand field BO to include said set of valid values
4 using said current resource values and based upon said user selected
5 constraints includes the step of reducing said branch operand field BO
6 based upon said current CTR value and based upon said user selected
7 constraints.

1   12.   A computer program product for implementing a level bias
2 function for branch prediction control as recited in claim 8 wherein the step
3 generating said branch operand field BO to include said set of valid values
4 using said current resource values and based upon said user selected
5 constraints includes the step of reducing said branch operand field BO
6 based upon based upon said user selected options for said percentage
7 branch should be predicted and said accuracy of the prediction constraints.

1   13.   Apparatus for implementing an operand level bias for branch
2 prediction control for generating test simulation vectors comprising:
3   a user interface for receiving user selected options for a set of
4 constraints for generating test simulation vectors for branch conditional
5 instructions;
6   a count register (CTR) and a branch condition register (CR) for storing
7 current resource values for predicting a branch for a branch conditional
8 instruction; and
9   an level bias function for generating a branch operand field BO to
10 include a set of valid values using said current resource values and based
11 upon said user selected constraints; said branch operand field BO defining
12 conditions under which a branch is taken.

1   14.   Apparatus for implementing an operand level bias for branch
2 prediction control as recited in claim 13 wherein set of constraints includes a
3 percentage branch should be taken; a percentage branch should be
4 predicted; and an accuracy of the prediction.

ROC920030196US1

1   15.   Apparatus for implementing an operand level bias for branch
2   prediction control as recited in claim 13 wherein said branch condition
3   register (CR) stores current resource values including a current value of said
4   branch operand field BO and a current value of a branch operand field BI,
5   said branch operand field BI indicating a CR bit to be read; and said count
6   register (CTR) stores a current count value.

1   16.   Apparatus for implementing an operand level bias for branch
2   prediction control as recited in claim 15 wherein said level bias function
3   generates said branch operand field BO using said current value of said
4   branch operand field BI and based upon said user selected constraints to
5   reduce said current value of said branch operand field BO to include said set
6   of valid values.

1   17.   Apparatus for implementing an operand level bias for branch
2   prediction control as recited in claim 15 wherein said level bias function
3   generates said branch operand field BO using said current count value of
4   said count register (CTR) and based upon said user selected constraints to
5   reduce said current value of said branch operand field BO to include said set
6   of valid values.

1   18.   Apparatus for implementing an operand level bias for branch
2   prediction control as recited in claim 14 wherein said level bias function
3   generates said branch operand field BO using said percentage branch
4   should be predicted and said accuracy of the prediction constraints to
5   reduce said current value of said branch operand field BO to include said set
6   of valid values.